

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) are set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims, in accordance with the following:

1. (PREVIOUSLY AMENDED) An optical transmission system, comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

encoding means, having n outputs, for forming k data by aligning phases of data on k channels with each other and for generating $(n-k)$ error correction bits for said k data and adding said $(n-k)$ error correction bits to said k data, said $(n-k)$ error correction bits being in parallel with said k data, and

wavelength-multiplexing means, connected to the encoding means, for converting both said k data and said $(n-k)$ error correction bits to n optical signals having different wavelengths and for wavelength-multiplexing said n optical signals so as to be delivered to the optical transmission line; and

the receiving-end optical transmission device comprising:

wavelength-demultiplexing means for separating the wavelength-multiplexed optical signals from the optical transmission line into n optical signals, each corresponding to one of the different wavelengths, and

decoding means connected to the wavelength-demultiplexing means, for generating k error corrected data by correcting error bits using the $(n-k)$ error correction bits contained in said n separated optical signals.

2. (PREVIOUSLY AMENDED) An optical transmission system comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

parity generating means for forming k data by adding an SOH (Section Over Head) including at least one error monitoring byte to data on k channels and aligning phases of said data with each other and for generating a parity bit for said k data and adding said parity bit to said k data; and

wavelength-multiplexing means connected to the parity generating means, for converting said k data and said parity bit to $(k+1)$ optical signals having different wavelengths and for wavelength-multiplexing said $(k+1)$ optical signals so as to be delivered to the optical transmission line, and

the receiving-end optical transmission device comprising:

wavelength-demultiplexing means for separating the wavelength-multiplexed optical signals from the optical transmission line into $(k+1)$ optical signals, each corresponding to one of the different wavelengths; and

error correction means connected to the wavelength-demultiplexing means, for correcting error bits based on one result of a parity check for said separated $(k+1)$ optical signals and the other result of a parity check using said at least one error monitoring byte.

3. (PREVIOUSLY AMENDED) An optical transmission system comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

encoding means having k input and n outputs, for generating $(n-k)$ error correction bits for every transmission data having k bits; and

wavelength-multiplexing means connected to the encoding means, for converting said transmission data and said $(n-k)$ error correction bits to n optical signals having different wavelengths and for wavelength-multiplexing said n optical signals so as to be delivered to the optical transmission line, and

the receiving-end optical transmission device comprising:

wavelength-demultiplexing means for separating the wavelength-multiplexed optical signals from the optical transmission line into n optical signals, each corresponding to one of the different wavelengths; and

decoding means connected to the wavelength-demultiplexing means, for correcting

error bits of data having k bits contained in said n separated optical signals by using said $(n-k)$ error correction bits contained in said n separated optical signals.

4. (CANCELLED)

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5. (PREVIOUSLY AMENDED) An optical transmission device, comprising:
encoding means, having k inputs, for forming n data by generating $(n-k)$ error correction bits for k data corresponding to k channels and adding the $(n-k)$ error correction bits to the k data;

phase alignment means for aligning phases of the n data received from the encoding means;

electrical-optical converting means for converting the n data, aligned in phase by the phase alignment means, to n optical signals having different wavelengths; and

wavelength-multiplexing means for multiplexing the n optical signals having the different wavelengths received from the electrical-optical converting means so as to form wavelength-multiplexed signals.

6. (CANCELLED)

7. (CANCELLED)

8. (CANCELLED)

5.
9. (ORIGINAL) An optical transmission device comprising:

SOH inserting means for adding an SOH (Section Over Head) including an error monitoring byte to data for each of k channels;

parity generating means for receiving the data for each of the k channels from the SOH inserting means, calculating and adding a parity to the data so as to generate $(k+1)$ data;

phase alignment means for aligning phases of the $(k+1)$ data received from the parity generating means;

electrical-optical converting means for converting the $(k+1)$ data whose phases are aligned by the phase alignment means to $(k+1)$ optical signals having different phases; and

wavelength-multiplexing means for multiplexing the $(k+1)$ optical signals from the electrical-optical converting means so as to form wavelength-multiplexed signals.

6.

10. (ORIGINAL) An optical transmission device comprising:

wavelength-demultiplexing means for separating $(k+1)$ multiplexed optical signals into $(k+1)$ optical signals having $(k+1)$ wavelengths, respectively;

optical-electrical converting means for receiving the separated $(k+1)$ optical signals from the wavelength-demultiplexing means and converting said $(k+1)$ optical signals into $(k+1)$ electrical signals;

parity detection means for receiving the $(k+1)$ electrical signals received from the optical-electrical converting means and locating a bit position of an error bit by checking a parity contained in said received $(k+1)$ electrical signals and by performing parity check for each data of the k electrical signals corresponding to k channels using at least one error monitoring byte attached to said k electrical signals; and

error correction means for performing an error correction at the bit position of the error bit located by the parity detection means.

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(ORIGINAL) An optical transmission device comprising:

encoding means having k inputs and n outputs, for generating $(n-k)$ error correction bits for every k bits of transmission data;

phase alignment means for aligning both tops of the transmission data having the k bits and the $(n-k)$ error correction bits in phase;

electrical-optical converting means for converting the transmission data and the error correction bits aligned in phase with one another by the phase alignment means to optical signals having different wavelengths;

wavelength-multiplexing means for receiving from the electrical-optical means and multiplexing the optical signals having the different wavelengths.

12. (CANCELLED)

13. (CANCELLED)

14. (CANCELLED)

15. (CANCELLED)

16. (CANCELLED)

17. (CANCELLED)

18. (CANCELLED)

19. (CANCELLED)

20. (CANCELLED)

8.
21.

(PREVIOUSLY AMENDED) An optical transmission system comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

data generating means for aligning phases of a first predetermined number of data on a corresponding number of channels and for adding a second predetermined number of error correction bits to said first predetermined number of data, said second predetermined number of error correction bits being in parallel with said first predetermined number of data, and

wavelength-multiplexing means, connected to the data generating means, for converting each of said first predetermined number of data and said second predetermined number of error correction bits to respective optical signals having different wavelengths and for wavelength-multiplexing said optical signals so as to be delivered to the optical transmission line; and

the receiving-end optical transmission device comprising:

wavelength-demultiplexing means for separating the wavelength-multiplexed optical signals from the optical transmission line into further optical signals, each

corresponding to one of the different wavelengths, and

data regenerating means, connected to the wavelength-demultiplexing means, for regenerating said first predetermined number of error corrected data by correcting error bits of a third number of further data, the third number being equal to the first number, contained in said further optical signals using said second number of error correction bits contained in said further optical signals.

9.
~~22.~~ (PREVIOUSLY AMENDED) A transmitting-end optical transmission device in an optical transmission system comprising the transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices, comprising:

data generating means for aligning phases of a first predetermined number of data on a corresponding number of channels and for adding a second predetermined number of error correction bits to said first predetermined number of data, said second predetermined number of error correction bits being in parallel with said first predetermined number of data; and

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wavelength-multiplexing means, connected to the data generating means, for converting each of said first predetermined number of data and said second predetermined number of error correction bits to respective optical signals having different wavelengths and for wavelength-multiplexing said optical signals so as to be delivered to the optical transmission line.

10.
~~23.~~ (CURRENTLY AMENDED) A receiving-end optical transmission device in an optical transmission system comprising a transmitting-end optical transmission device, the receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices, wherein the optical transmission line transmits wavelength-multiplexed optical signals, each said optical signal being converted from each of a first predetermined number of data and a second predetermined number of error correction bits, said second predetermined number of error correction bits being in parallel with said first predetermined number of data, said receiving-end optical transmission device further comprising:

wavelength-demultiplexing means for separating the wavelength-multiplexed optical

signals from the optical transmission line into further optical signals, each corresponding to one of the different wavelengths; and

data regenerating means, connected to the wavelength-demultiplexing means, for regenerating said first predetermined number of error corrected data by correcting error bits of a third number of further data, the third number being equal to the first number, contained in said further optical signals using said second number of error correction bits contained in said further optical signals.

^{11.}
~~24.~~ (PREVIOUSLY AMENDED) An optical transmission system comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

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a data generator aligning phases of a first predetermined number of data on a corresponding number of channels and adding a second predetermined number of error correction bits to said first predetermined number of data, said second predetermined number of error correction bits being in parallel with said first predetermined number of data, and

a wavelength-multiplexor, connected to the data generator, converting each of said first predetermined number of data and said second predetermined number of error correction bits to respective optical signals having different wavelengths and wavelength-multiplexing said optical signals so as to be delivered to the optical transmission line; and

the receiving-end optical transmission device comprising:

a wavelength-demultiplexor separating the wavelength-multiplexed optical signals from the optical transmission line into further optical signals, each corresponding to one of the different wavelengths, and

a data regenerator, connected to the wavelength-demultiplexer, regenerating said first predetermined number of, error corrected data, derived from a third number of further data contained in said further optical signals using said second predetermined number of error correction bits contained in said further optical signals, the third number

being equal to the first number.

12.
25. (PREVIOUSLY AMENDED) A transmitting-end optical transmission device in an optical transmission system comprising the transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices, comprising:

a data generator aligning phases of a first predetermined number of data on a corresponding number of channels and adding a second predetermined number of error correction bits to said first predetermined number of data, said second predetermined number of error correction bits being in parallel with said first predetermined number of data; and

a wavelength-multiplexor, connected to the data generator, converting each of said first predetermined number of data and said second predetermined number of error correction bits to respective optical signals having different wavelengths and wavelength-multiplexing said optical signals so as to be delivered to the optical transmission line.

13.
26. (CURRENTLY AMENDED) A receiving-end optical transmission device in an optical transmission system comprising a transmitting-end optical transmission device, the receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices, wherein the optical transmission line transmits wavelength-multiplexed optical signals, each of said optical signal being converted from each of a first predetermined number of data and a second predetermined number of error correction bits, said second predetermined number of error correction bits being in parallel with said first predetermined number of data, said receiving-end optical transmission device further comprising:

a wavelength-demultiplexor separating the wavelength-multiplexed optical signals from the optical transmission line into further optical signals, each corresponding to one of the different wavelengths; and

a data regenerator, connected to the wavelength-demultiplexor, regenerating said first predetermined number of error-corrected data, derived from a third number of further data contained in said further optical signals using said second predetermined number of error correction bits contained in said further optical signals, the third number being equal to the first

number.

27. (CANCELED)

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(PREVIOUSLY AMENDED) An optical transmission system as recited in claim 27, wherein the transmission-end device comprises:

a data generator aligning phases of a first predetermined number of data on a corresponding number of channels and adding a second predetermined number of error correction bits to said first predetermined number of data, said second predetermined number of error correction bits being in parallel with said first predetermined number of data; and

a wavelength-multiplexor, connected to the data generator, converting each of said first predetermined number of data and said second predetermined number of error correction bits to respective optical signals having different wavelengths and wavelength-multiplexing said optical signals so as to be delivered to the optical transmission line.

29. (PREVIOUSLY AMENDED) An optical transmission system as recited in claim 27, wherein the receiving-end device comprises:

a wavelength-demultiplexor separating the wavelength-multiplexed optical signals from the optical transmission line into further optical signals, each corresponding to one of the different wavelengths; and

a data regenerator, connected to the wavelength-multiplexor, regenerating said first predetermined number of error corrected data, derived from a third number of further data contained in said further optical signals using said second predetermined number of error correction bits contained in said further optical signals, the third number being equal to the first number.